

2021 Water Bodies Assessment and Recommendation Report

Arlington Conservation Commission

Approved Version 1/21/22

The Arlington Conservation Commission (ACC), through its Water Bodies Working Group (WBWG), continued the assessment of fourteen water bodies in the Town of Arlington, including five lakes and ponds and nine streams. A majority of these are negatively impacted by polluted runoff and stormwater discharges due to the highly urban nature of Arlington and surrounding towns. Most of these water bodies also have excessive aquatic invasive plants that degrade water quality, impede recreational use, and degrade aesthetics. In determining which water bodies could benefit from management measures using Town funding, the WBWG took a triage-based approach:

1. Water bodies that are in generally good shape, do not need much help, or whose issues are being addressed by other agencies or funding sources, e.g., Upper & Lower Mystic Lakes and Mystic River
2. Water bodies with some issues that could benefit from directed intervention, e.g. Spy Pond, Arlington Reservoir, Hills Pond, McClennen Park Detention Ponds (Reeds Brook)
3. Water bodies that are in poor shape with many issues that would need major efforts and additional funding to improve, e.g. Mill Brook and Alewife Brook.

Though the chemical treatments of several water bodies must continue for the coming year to control aquatic invasives and harmful algal blooms, the WBWG is focused on obtaining the appropriate data to develop comprehensive management plans for Spy Pond, Arlington Reservoir, and Hills Pond. Our goal is to develop management plans where chemical use is only one step along with strategies to reduce inputs of nutrients to the water bodies, methods to manually remove aquatic plants, and techniques to prevent further spread and development of aquatic invasives.

Based on the 2021 analysis, the WBWG has identified the following priority locations for 2022.

Arlington Reservoir – A Town-owned water body on the Arlington-Lexington border with invasive water chestnuts that form dense, impenetrable mats at the water’s surface, which impair public use and water quality. These plants have been harvested mechanically every summer for many years. They were not harvested in 2021 because construction activities prevented access. In 2022 there will be a new access ramp and we plan again to resume harvesting. For several years, the Mystic River Watershed Association (MyRWA) organized hand harvesting events but that was suspended in 2020 because of COVID-19.

This water body was assessed as part of the Reservoir Master Plan project. One recommendation of that report was that the water chestnuts be harvested earlier than they have been in recent years in order to reduce seed production. In 2020 the Water Bodies Fund supported the “2020 Aquatic Plant Survey and Management Plan” to evaluate the reservoir and its management practices. That study found:

Based on the data collected and observations during the survey, Arlington Reservoir is a shallow, eutrophic waterbody that has overall dense growth of aquatic vegetation. Of the five invasive species observed, three are very aggressive in their growth habits – water chestnut, curly-leaf pondweed, and Eurasian watermilfoil. As a result, there can be a significant decline in native vegetation and water quality. Management of these three species (and other non-native species) can improve water quality, recreational use, wildlife habitat, and aesthetic value.

The ACC is reviewing options for management of the Reservoir and may recommend additional actions beyond mechanical water chestnut harvesting.

The on-going master plan for the Reservoir is focused on the land areas and invasive plant control there, but also includes some bank restoration and wetland plantings.

The Reservoir despite invasive plants continues to be a healthy environment for fish, turtles, muskrats and many birds. It is also the birding spot in Arlington with the most observed species.

Hill's Pond – A small pond in the heavily used Menotomy Rocks Park with water quality and invasive plant problems. The Conservation Commission recommends continuing aeration, strictly limiting polluting activities near the pond or in areas that drain into the pond, maintaining a vegetated buffer strip around the pond four to ten feet wide of un-mowed grass or natural vegetation, and low-dose chemical treatments with aquatic herbicides to control algae and other detrimental water plants. Monthly site visits with proactive treatments in 2021 proved successful in reducing invasives. There was some algae growth that required treatment, but no harmful algal bloom (HAB) in 2021. An additional aeration line was approved by the Conservation Commission in 2021.

Mill Brook – The poor water quality of Mill Brook decreased marginally in 2020 from D+ to a D (EPA/MyRWA Water Quality Report: <https://mysticriver.org/epa-grade/>). Mill Brook's poor water quality is basically due to stormwater runoff; however, the possibility of illicit discharges are also being investigated by the Department of Public Works. Where not channelized, the brook and its adjacent shore provide valuable wildlife habitat and opportunities for nature views.

Wellington Park - The Mystic River Watershed Association (MyRWA) working with the Town has received CPA funds, a Municipal Vulnerability Grant, and Community Development Block Grants for improving public access, improving water quality, and reducing floodwaters along Mill Brook near Wellington Park.

In 2019, park improvements created more flood storage capacity and removed invasive terrestrial plants. Phase III



Phase III proposes to add native plantings and informal play components along Mill Brook in Wellington Park.

(ongoing), will improve park amenities, improve stormwater quality, remove more invasive terrestrial plants, and create more robust native vegetated buffers along the brook's bank. Phase III construction began in Spring 2021 and is funded through CPA funds and a Judy Record Fund grant. . Over the course of 2021, the last phase of the project was conducted to enhance native vegetation and improve the recreational amenities of the park, which now include an extended porous asphalt path and a naturalized play area. The bridge over Mill Brook was found to pose a safety hazard and was removed. Some finishing

touches remain for 2022, including planting additional vegetation and landscaping, but public access to the park was reestablished in early December 2021.

McClennen Park Detention Ponds on Reeds Brook – A 2019 investigation into the iron flocculation found no “readily apparent harm” to the resource area, yet the WBWG and Arlington Conservation Commission have been discussing next steps to identify causes and develop strategies to improve in-basin water quality. WBWG members will meet with Arlington DPW to discuss opportunities to conduct routine detention basin maintenance.

In 2020 the ACC in conjunction with Park and Recreation Commission and the Department of Public Works established a vegetated buffer strip around the ponds to control runoff and to improve wildlife habitat. This may be expanded in the future. This buffer strip was maintained in 2021.

Spy Pond – One of Arlington's most heavily used open spaces for recreation, Spy Pond has an invasive plant problem within and around the pond. The surrounding managed landscape contributes to nutrient loading and low oxygen levels. Left untreated, invasive plants impair recreational use. Spy Pond is a 103-acre kettle hole pond in East Arlington. Its eastern shore features Spy Pond Park, Boys and Girls Club, and Scannell Field. Spy Pond is a popular destination for walking, birding, picnics, fishing, boating, and sailing.

At the end of January 2021, there was good ice with 200 skaters and walkers on the pond. A 13" yellow perch was caught on the first day of ice fishing. In April, an 18" chain pickerel was caught. The swans laid eight eggs on Elizabeth Island. Sadly, the female swan died after the eggs hatched in May. The male swan took over and raised four cygnets. He found a mate after the cygnets fledged in October. Other animals include coyotes, foxes, and eagles. A Great Horned Owl is occasionally heard.

This year was unusually wet with water overflowing into Little Pond throughout the summer. Hurricane's Henri and Ida dumped over 4" of rain apiece. The heavy rain, dredging, and limited aquatic plants led to an algae bloom from mid- August to the end of September.

The WBWG commissioned a report on the health of Spy Pond, including its water quality and the state of its aquatic vegetation. In 2021, SWCA Environmental Consultants of Amherst was contracted by the Conservation Commission to perform a survey of Spy Pond. Their findings and recommendations were documented in a comprehensive report presented to the Conservation Commission at a public meeting. The report found considerable historic contamination which, together with stormwater runoff, create an environment in which opportunistic and invasive species crowd out other pond life. The report also reviewed past management efforts and recommended alternatives for 2022. SWCA's conclusion was that Spy Pond was over treated with aquatic herbicides to the detriment of the native vegetation. Two aquatic plant surveys performed in the Fall of 2021, one by SWCA and another by our current aquatic management contractor Solitude Lake Management, found no aquatic plants other than Nitella (a form of algae). Next year, we need to improve the aquatic management of Spy Pond. We have initiated discussions with several companies towards approaches that will use less herbicide and promote native plant growth.

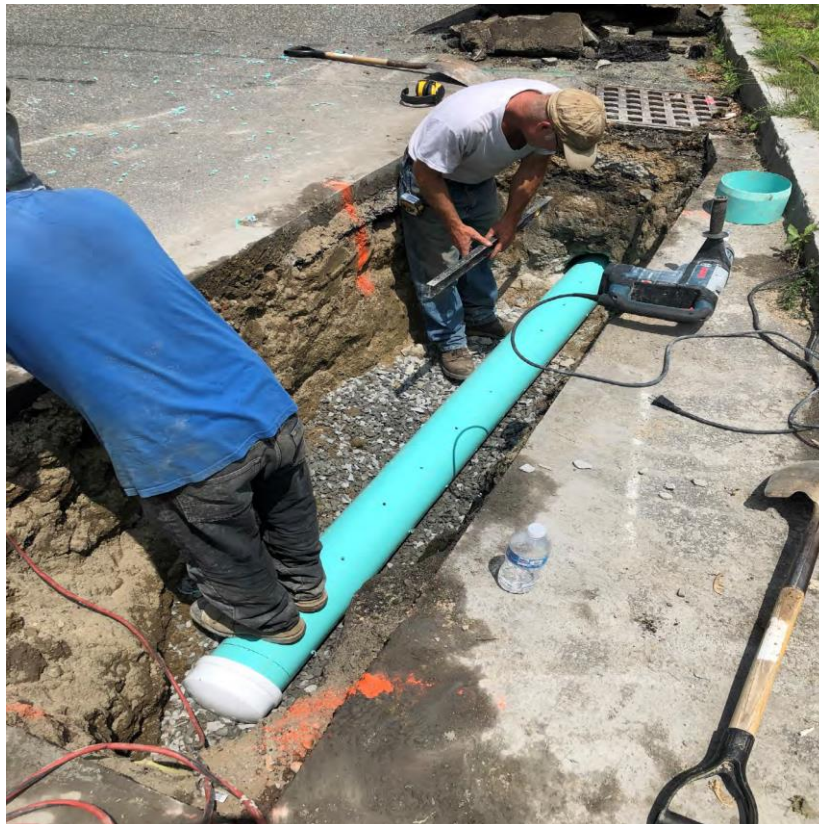
In 2021, the Massachusetts Department of Transportation dredged the sandbar located in the western portion of the pond, following Conservation Commission permit requirements. They removed three to four feet of sand that was deposited by the storm drain from Rt. 2 and Arlington Heights. They removed the

stone pillars that directed sand into the cove. The Arlington Department of Public Works (DPW) installed a hydrodynamic separator at the foot of Alfred Road to help improve water quality in the Pond.

In addition, as part of off-site stormwater mitigation for a residential project on Spy Pond, a Vortechnic Stormwater Treatment Unit was installed in the vicinity of Spy Pond Parkway to help mitigate water pollution into Spy Pond.

Alewife Brook – This stream runs along the eastern border of Arlington in the DCR Alewife Greenway Reservation. This area includes pedestrian and bicycle paths from the Alewife T station in Cambridge up to the Mystic River in Medford. The greenway includes many native plantings and provides a wildlife habitat. However, the water quality of Alewife Brook in 2020 was a low D grade (<https://mysticriver.org/epa-grade/>). Much of Alewife Brook's poor water quality is due to stormwater runoff. But an additional problem is the Combined Sewer Outfalls (CSO) which release untreated sewage into the brook from Cambridge and Somerville in storm events. That creates further problems during flood events when this sewage contaminated water can flow onto adjacent properties in the floodplain. This is a problem which requires a regional solution involving the adjacent towns and the state. In December 2021, the Arlington Select Board committed itself to working to find a solution.

Mystic River– The Mystic River dropped to the EPA/MyRWA water quality rating of B+ in 2020. (<https://mysticriver.org/epa-grade/>). In order to improve the water quality of the Mystic River and Alewife Brook, the Department of Public Works is installing green infiltration infrastructure, such as rain gardens and infiltration trenches. Rain gardens and infiltration trenches have been constructed in East Arlington to filter pollutants out of stormwater before stormwater discharges to the Mystic River and Alewife Brook.



Infiltration trench under construction next to a storm drain. Note the holes in the pipe for water flow. The trench will then be filled with gravel and paved over for stormwater storage.

This work is managed by DPW and funded through Coastal Pollutant Remediation Grants from the Office of Coastal Zone Management (CZM). In 2021, a CZM grant was awarded with the partnership of the Mystic River Watershed Association (MyRWA) and the Town of Lexington. In 2021 this funding supported thirty street infiltration trenches, one rain garden, a porous pavement path and a Vortech stormwater treatment unit. These additions will reduce the amount of pollutants entering Alewife Brook and the Mystic River, improving compliance with the state stormwater permit. This grant expands on another CZM grant awarded to Arlington and MyRWA in 2020, through which twenty trenches were constructed in East Arlington in 2020.

Monitoring of the **Mystic Riverfront Restoration Project** continued in 2021 with invasive plants control along the river. The restoration created more flood storage capacity and is improving water quality by infiltration of stormwater through a newly-created swale coupled with improvements implemented by Arlington DPW upstream of the outfall to increase capacity to capture and infiltrate storm water expected from extreme weather events. The Memorandum of Agreement between DCR and the Town was finally signed in 2021 such that this restored riparian habitat and swale can be maintained into the future.



View of swale and riparian habitat at the Mystic Riverfront Restoration site in 2021 courtesy of Nathaniel Stevens, Conservation Commissioner).

Floating Wetlands Pilot Project – In July 2020, the Conservation Commission approved an Eagle Scout project to install a series of floating wetlands in the McClennen detention basins and Hill's Pond. The

project's goals included creating more wildlife habitat in the water bodies and removing excess nutrients from the water. The floating wetlands were installed in September 2020 and remained in place through 2021..

The Water Bodies Working Group has collected information for all the water bodies evaluated in support of this report. The Conservation Commission recommends that the Working Group monitor other locations that have not been identified above as a priority. All water body recommendations for actions and funding will be reviewed on an annual basis.

We would also like to thank everyone who has been involved in caring for Arlington's water bodies including Friends of Spy Pond, Friends of Menotomy Rocks Park, the Reservoir Committee, the Department of Public Works, the Park and Recreation Commission, the Mystic River Watershed Association, and many others.

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This report was approved by the Conservation Commission on January 20, 2022 .

The WBWG thanks David Morgan, Conservation Agent, for his assistance in preparing this report.